Amendments to the Claims:

Please add new claim 26. Please amend claim 1 as follows.

The listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims:

1. (Currently Amended) A method for recognizing stations in a home network of an OFDM-based system, wherein the home network includes starting and destination stations, the method comprising:

(a) assigning a node number to each station and assigning subchannels corresponding to the node number of each station;

(b) constructing, by the starting station, a recognition tone[[s]] that corresponds to an assigned subchannel of the assigned subchannel[[s]] for the node numbers of ~~, the tones assigned to~~ the starting station and the destination station, ~~and the tones including the node number of the starting station and the node number of the destination station, and~~ the recognition tone being constructed as a single OFDM symbol, and placing the single OFDM symbol in a frame for transmission; and

(c) stations other than the starting station detecting the tones from the frame, recovering the node numbers of the starting station and the destination station using indices of the subchannels obtained from the tones, and recognizing the starting station and the destination station.

2. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 1, wherein the number of subchannels assigned to each node number in step (a) is calculated by dividing the number of total subcarriers by the number of nodes included in the home network.

3. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 1, wherein the assignments of subchannels in step (a) are performed according to the following equation:

$$D_i = \{(k \bmod d) == DSN\}, k < N/2$$
$$S_i = \{(k \bmod d) == SSN\}, k > N/2, i = 1, \cdots, M/2,$$

where N indicates the number of total subcarriers, DSN indicates a node number of the destination station, SSN indicates a node number of the starting station, D_i indicates an index of a subchannel assigned to the destination station, and S_i indicates an index of a subchannel assigned to the starting station.

4. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 1, wherein the OFDM symbol is placed in a foremost part of the frame in step (b).

5. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 4, wherein in step (c) a station that determines that it is the destination station receives additional symbols of the frame, while stations other than the destination station do not receive the additional symbols of the frame.

6. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 1, wherein the tones in step (b) that are assigned to the starting station are loaded into an upper band centering about a subcarrier frequency and the tones assigned to the destination station are loaded into a lower band centering about the same subcarrier frequency.

7. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 1, in which phases of the tones in step (b) are rotated pseudo-randomly

according to following equation:

$$X_k = \{\ 0, k \neq S_i \text{ or } D_i,\ o \leq k \leq 256$$

$$\{\ Q_k, k = S_i, \text{ provided } Q_k \text{ rotates by } p\pi/2,\ p = (k \bmod 4),$$

where D_i indicates indices of subchannels assigned to the destination station, and S_i indicates indices of subchannels assigned to the starting station.

8. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 1, wherein the node number detection in step (c) is performed by detecting the node number of a corresponding station by modulo-calculating the indices of the subchannels by the maximum number of nodes constituting the home network.

9. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 8, wherein a node number that is most frequently detected is selected, if the node number is detected at least once.

10. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 1, wherein the tone in step (b) is expressed as $\hat{x}_n = \sqrt{\frac{N}{M}} * \tilde{x}_n$ in the time domain in order to have the same power as the power of subsequent OFDM symbols,

where M indicates the number of subchannels assigned to a single node number, N indicates the number of total subcarriers, and $\tilde{x}_n$ indicates each modulated subcarrier in which a cyclic prefix is inserted.

11. – 20. (Canceled)

21. (Previously Presented) A method for recognizing stations in a home network of an OFDM-based system, wherein the home network includes starting and destination stations, the method comprising the steps of:

(a) assigning a node number to each station and assigning subchannels corresponding to the node number of each station, wherein the assignments of the subchannels are performed according to the following equation:

$$D_i = \{(k \bmod d) == DSN\}, k < N/2$$
$$S_i = \{(k \bmod d) == SSN\}, k > N/2, i = 1, \cdots, M/2,$$

where N indicates the number of total subcarriers, DSN indicates a node number of the destination station, SSN indicates a node number of the starting station, D_i indicates an index of a subchannel assigned to the destination station, and S_i indicates an index of a subchannel assigned to the starting station;

(b) the starting station constructing tones corresponding to the subchannels assigned to its own node number and the node number of the destination station as a single OFDM symbol, and placing the OFDM symbol in a frame for transmission; and

(c) stations other than the starting station detecting the tones from the frame, recovering the node number using indices of the subchannels obtained from the tones, and recognizing the starting station and the destination station.

22. (Previously Presented) A method for recognizing stations in a home network of an OFDM-based system, wherein the home network includes starting and destination stations, the method comprising the steps of:

(a) assigning a node number to each station and assigning subchannels corresponding to the node number of each station;

(b) the starting station constructing tones corresponding to the subchannels assigned to its own node number and the node number of the destination station as a single OFDM symbol, and

placing the OFDM symbol in a frame for transmission, wherein the OFDM symbol is placed in a foremost part of the frame; and

(c) stations other than the starting station detecting the tones from the frame, recovering the node number using indices of the subchannels obtained from the tones, and recognizing the starting station and the destination station, wherein a station that determines that it is the destination station receives additional symbols of the frame, while stations other than the destination station do not receive the additional symbols of the frame.

23. (Previously Presented) The method for recognizing stations in the home network as claimed in claim 22, wherein the tones in step (b) that are assigned to the starting station are loaded into an upper band centering about a subcarrier frequency and the tones assigned to the destination station are loaded into a lower band centering about the same subcarrier frequency.

24. (Previously Presented) A method for recognizing stations in a home network of an OFDM-based system, wherein the home network includes starting and destination stations, the method comprising the steps of:

(a) assigning a node number to each station and assigning subchannels corresponding to the node number of each station;

(b) the starting station constructing tones corresponding to the subchannels assigned to its own node number and the node number of the destination station as a single OFDM symbol, and placing the OFDM symbol in a frame for transmission, wherein phases of the tones are rotated pseudo-randomly according to the following equation:

$$X_k = \begin{cases} 0, k \neq S_i \text{ or } D_i, & o \leq k \leq 256 \\ Q_k, k = S_i, \text{ provided } Q_k \text{ rotates by } p\pi/2, & p = (k \bmod 4), \end{cases}$$

where D_i indicates indices of subchannels assigned to the destination station, and S_i indicates indices of subchannels assigned to the starting station; and

(c) stations other than the starting station detecting the tones from the frame, recovering

the node number using indices of the subchannels obtained from the tones, and recognizing the starting station and the destination station.

25. (Previously Presented) A method for recognizing stations in a home network of an OFDM-based system, wherein the home network includes starting and destination stations, the method comprising the steps of:

(a) assigning a node number to each station and assigning subchannels corresponding to the node number of each station;

(b) the starting station constructing tones corresponding to the subchannels assigned to its own node number and the node number of the destination station as a single OFDM symbol, and placing the OFDM symbol in a frame for transmission, wherein the tones are expressed as $\hat{x}_n = \sqrt{\frac{N}{M}} * \tilde{x}_n$ in the time domain in order to have the same power as the power of subsequent OFDM symbols,

where M indicates the number of subchannels assigned to a single node number, N indicates the number of total subcarriers, and $\tilde{x}_n$ indicates each modulated subcarrier in which a cyclic prefix is inserted; and

(c) stations other than the starting station detecting the tones from the frame, recovering the node number using indices of the subchannels obtained from the tones, and recognizing the starting station and the destination station.

26. (New) The method for recognizing stations in the home network as claimed in claim 1, wherein the frame is a forward link initialization frame.